

### REMARKS

Reconsideration and allowance of this application is respectfully requested in light of the foregoing amendments and the following remarks.

### Status of Claims

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of U.S. Patent No. 5,938,874 ("Palomo").

### The Claims

Claims 1, 4-5, and 8-11 are amended. Support for the amended Claim 1 is found at page 5, lines 3-4. Support for **volume** in amended Claims 4, 5, and 8 is found at page 4, lines 16-18. Furthermore, support for **mechanical strength** in amended Claims 1, and 8 is found at page 3, lines 17-19. In addition, support for **elastomer** in amended Claims 9, 10, and 11 is found at page 5, lines 3-6.

### Section 112 Rejection

Claims 1, 4-5, and 8-11 have been amended to overcome the rejection set forth in paragraph 2, page 2 of the above-mentioned Office Action. This rejection is now overcome.

### The Invention

The instant invention is directed to a method of improving the mechanical strength of a microporous membrane; furthermore, the instant invention is directed to a mechanically strengthened microporous membrane.

The method of improving the mechanical strength of a microporous membrane, as described in Claims 1 and 8, includes providing a microporous sheet that comprises of a blend of an aliphatic polyolefin and a thermoplastic olefin elastomer. The thermoplastic olefin elastomer, as described in Claim 1, comprises **less than 10 percent by blend weight** while the thermoplastic olefin elastomer, as described in Claim 8, comprises **3 to 7 percent by blend weight**.

The mechanically strengthened microporous membrane, as described in Claim 9, includes a microporous sheet that comprises of a blend of an aliphatic polyolefin and a thermoplastic olefin elastomer. The thermoplastic olefin elastomer, as described in Claim 9, comprises **less than 10 percent by blend weight**.

### Cited References

The instant application discloses that "microporous membranes are typically made of polyolefins, such as polypropylene and polyethylene." Page 3 of the application, lines 1-2. Furthermore, applicant's admitted prior arts disclose that "it is known in the film art that mechanical strength of: non-porous polypropylene films may be increased by the addition of polyisobutylene rubber and fillers (U.S. Patent No. 4,911,985); non-porous packaging films may be improved by the addition of an elastomer (U.S. Patent No. 5,071,686); and non-porous high density polyethylene films may be improved by addition of elastomers (U.S. Patent No. 5,635,262)." Page 3 of the application, lines 2-8. In addition, the applicant's admitted prior art, European Publication No. 1,153,967, discloses "a microporous membrane made of a resin composition comprising an alicyclic compound and a resin selected from the group consisting of polyolefins, thermoplastic elastomers, and graft polymers." Page 3 of the application, lines 11-15.

However, none of the applicant's admitted prior arts teaches or suggests how one may improve the mechanical strength of a microporous membrane; specifically, none the above-mentioned references mentions anything regarding the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, as required by the instant invention to improve the

**mechanical strength** of a **microporous** membrane without interfering with its porosity.

Palomo is directed to different methods of making microporous films and medical gowns made from the microporous films. Column 1, lines 12-14. "Palomo discloses a medical gown, which at least a portion thereof, is made from an effective liquid and viral barrier material, which is breathable. The barrier material includes a **support layer** and a **film layer** adhesively laminated to the support layer." Column 1, lines 54-58. "The support layer provides **strength**, durability, and wicking." Column 6, lines 18-20. The film layer is microporous, and it can be made by adding foaming agent to the components of film material prior to extruding the film; in addition, the microporous film can be made by adding filaments to the components of the film material prior to extruding the film; and subsequently, removing the filaments after extrusion by dissolving them with suitable solvent to form pores in the film." Column 1, line 65 - Column 2, line 12.

Palomo also mentions that "microporous film is preferably **flexible** and **resilient**; furthermore, examples of suitable materials that can be used to make microporous film includes polyolefins, thermoplastic elastomers, thermoset elastomers, polyurethanes, polyethylenes, polypropylenes or blends of these polymers." Column 4, lines 29-35.

However, Palomo fails to mention anything about the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, as required by the instant invention to improve the mechanical strength of a microporous membrane without interfering with its porosity.

### Section 103 Rejection

The instant invention is rejected, as being obvious, over the applicant's admitted prior art in view of Palomo. Applicant traverses those rejections.

Cited references fail to mention anything about the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, as required by the instant invention to improve the mechanical strength of a microporous membrane without interfering with its porosity. In addition, there is no suggestion or motivation in the cited references to utilize the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, to improve the mechanical strength of a microporous membrane without interfering with its porosity; furthermore, a person skilled in the art ("skilled person") also lacks such knowledge.

To establish a *prima facie* case of obviousness, the following three basic elements must be met: (1) the prior art reference or references when combined must teach or suggest all the claim limitations; (2) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; and (3) there must be a reasonable expectation of success. MPEP § 2143.

First, the cited references, when combined together, fail to teach or suggest all the claim limitations of the instant invention.

The instant invention, as mentioned hereinabove, requires an optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**. The optimum amount of thermoplastic olefin elastomer is important to the instant invention because it enables a skilled person to improve the mechanical strength of a microporous membrane without interfering with its porosity.

The instant application, as stated above, does not **state, suggest, or imply** that a person skilled in the art knows how to improve the mechanical strength of a **microporous** membrane without interfering with its porosity. The instant application simply discloses that "microporous membranes are typically made of

polyolefins, such as polypropylene and polyethylene." Page 3 of the application, lines 1-2. Furthermore, neither any of the applicant's admitted prior arts, nor Palomo mentions anything regarding the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, to improve the mechanical strength of a **microporous** membrane without interfering with its porosity. In addition, a skilled person also lacks such knowledge. The lack of such knowledge by a skilled person can be inferred from the fact that had a skilled person possessed such knowledge; then, Palomo or any of the applicant's admitted prior arts would have utilized such knowledge to improve the mechanical strength of a microporous membrane.

Therefore, the cited references, when combined together, fail to teach or suggest one of the important limitations of the instant invention, the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**.

Second, not only do the cited references, fail to suggest or motivate the skilled person to modify the cited references or to combine their teachings to achieve the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, but Palomo also teaches away from it.

The present invention, as mentioned hereinabove, requires an optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**. The optimum amount of thermoplastic olefin elastomer is important to the instant invention because it enables a skilled person to improve the mechanical strength of a microporous membrane without interfering with its porosity.

The applicant's admitted prior art, and Palomo fail to suggest or motivate the skilled person to modify their teachings or to combine their teachings to achieve the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, in order to improve the mechanical strength of a microporous membrane without interfering with its porosity. Palomo prefers "a **flexible** and **resilient** microporous film." Column 4, lines 29-30. However, flexible and resilient is different from mechanically strengthened. Webster's Third New International Dictionary defines resilient as "returning freely to a previous position, shape, or condition," and it further defines flexible as "capable of being turned, bowed, or twisted without breaking." Webster's Third New International Dictionary (Philip Babcock Gove, 3<sup>rd</sup> ed, Merriam-Webster Inc.). However, Webster's Third New International Dictionary defines strength as "the quality of enduring the application of force without breaking." Id. Therefore, Palomo fails to suggest or motivate a skilled person to utilize the optimum amount of thermoplastic olefin elastomer, less



than 10 percent by blend weight, **to improve the mechanical strength of a microporous membrane** without interfering with its porosity.

In addition, Palomo teaches away from utilizing the optimum amount of thermoplastic olefin elastomer, less than 10 percent by blend weight, **to improve the mechanical strength of a microporous membrane** without interfering with its porosity. Palomo, as stated above, utilizes the support layer to provide strength to the film layer; thus, a skilled person would be motivated to use the same technique to improve the strength of a microporous membrane. Therefore, Palomo teaches away from utilizing the optimum amount of thermoplastic olefin elastomer, less than 10 percent by blend weight, **to improve the mechanical strength of a microporous membrane** without interfering with its porosity.

In addition, a skilled person, as mentioned hereinabove, lacks the knowledge that utilizing the optimum amount of thermoplastic olefin elastomer, **less than 10 percent by blend weight**, as required by the instant invention is necessary to improve the mechanical strength of a microporous membrane without interfering with its porosity.

Therefore, not only do the applicant's admitted prior art, and Palomo fail to suggest or motivate the skilled person to modify their teachings or to combine their teachings to achieve the

optimum amount of thermoplastic olefin elastomer, less than 10 percent by blend weight, to improve the mechanical strength of a microporous membrane without interfering with its porosity, but Palomo also teaches away from it.

### Conclusion

The first two requirements to establish a *prima facie* case of obviousness have not been met; therefore, the instant invention is not obvious over the applicant's admitted prior art in view of Palomo.

In view of the foregoing, the applicant respectfully requests an early Notice of Allowance in the instant application.

Respectfully submitted,



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